



Klamath Network Featured Creature

January 2011

Wolf Lichen (*Letharia* sp.)

FIELD NOTES:

General Description: Lichens are evolutionary ancient composite organisms, containing members of two (sometimes three) biological kingdoms. The combination of organisms are a fungus and a photosynthetic partner (green algae, cyanobacteria, or both), growing together in a mutually controlled symbiotic relationship. The fungus provides the structure or 'home' for the photosynthetic partner, which, in turn, provides carbohydrates (food) to the fungus. Together these organisms can survive in habitats neither could survive in alone. The lichen's structure, physiology, reproduction, and chemistry are different from any of the free living fungi, algae, or cyanobacteria. A common lichen genus *Letharia* is easily recognized by its brilliant florescent yellow green or chartreuse color (the yellow pigment is vulpinic acid) and highly branched, often bushy looking, growth form. Individuals can be up to 15 cm (6 in) across. In our area, we have three species of *Letharia*. All contain green algae as their photosynthetic partner. These species differ in morphology and reproductive strategies.

Where to See It in the Klamath Parks:

Members of the *Letharia* genus can be found in all Network parks.

Other resources:

<http://www.lichen.com/bigpix/Lvulpina.html>

McCune and Geiser. 2000. Macrolichens of the Pacific Northwest. Oregon State University Press.

http://www.californialichens.org/bulletin/cal_s11_2.pdf

<http://www.bioone.org/doi/abs/10.1639/0007-2745-112.2.375>



L. columbiana and its brown apothecia
http://www.ubcbotanicalgarden.org/potd/2007/06/letharia_columbiana.php



Letharia on Abies trunk
http://www.sharnoffphotos.com/lichensNH/scenes_close_south.html



Lethariasp.
http://www.flickr.com/photos/sorby/favorites/wth/241197536/#photo_241197536

Habitat: Members of the *Letharia* genus can be found from low elevation forests to timber line, usually in dry microsites. They especially thrive east of the Cascades, and are often abundant on old fence posts, dead branches, or snags.

Reproduction and growth: Lichens have the ability to reproduce both sexually and asexually. Asexual reproduction primarily occurs using specialized structures called isidia and soredia. These asexually structures contain both the fungus and photosynthetic partner and are best observed with magnification. The mechanism and importance of lichen sexual reproduction remain a bit of a mystery. We do know the sexual structures are created by the fungi and disperse spores. Sexual reproduction in *Letharia* occurs on apothecia; these are disk-like structures, shown in the top picture. Spores must find a photosynthetic partner after dispersal. Lichens grow slower than vascular plants.

Uses: **A) Poison**-the name *Letharia* comes from the Latin 'to poison' and members of this genus have been used for just that. Historically, in Scandinavia, *Letharia* was mixed with glass and placed in reindeer carcasses to kill foxes and wolves. In North America, native peoples used it to poison arrowheads. **B) Dye**-vulpic acid, which gives this species its characteristic color, can be extracted and used as a dye or paint. **C) Medicine**-native peoples, including the Okanagan-Colville and Blackfoot, have used a weak tea of *Letharia* to treat stomach and other internal problems.